

## **Questioned Documents Unit (QDU)**

### **Maintenance, Calibration, and Performance Verification of Equipment**

#### **1 Scope**

These procedures apply to all QDU personnel responsible for equipment that affects the validity of QDU examinations.

**1.1** This document addresses the maintenance, calibration, and performance verification requirements of the equipment used and maintained by the QDU. This includes the handling, transporting, storing, use and planned maintenance to ensure proper functioning to prevent contamination or deterioration.

**1.2** The referenced maintenance, calibration, and performance verification logbooks for each piece of equipment may be combined into one logbook for that piece of equipment.

#### **2 Maintenance**

**2.1** A maintenance logbook will be available for each piece of QDU equipment requiring maintenance. Typically, the maintenance logbooks will be located by the instrument(s) and include each instrument's serial number or other unique identifier as well as maintenance results. A record of pertinent information, as prescribed by the *FBI Laboratory Practices for the Calibration and Maintenance of Equipment*, will be maintained in the logbook.

**2.2** Any maintenance performed will be in accordance with the manufacturer's manual. The following is a list of QDU equipment with planned maintenance requirements:

<b><u>Equipment</u></b>	<b><u>Frequency</u></b>
Stereomicroscopes	Yearly*
Comparison Microscope	Yearly*
Keyence Digital Microscope	As Needed
Electrostatic Detection Apparatus (ESDA)	As Needed
Electrostatic Dust Lifter	As Needed
Ribbon Analysis Workstation (RAW II)	As Needed
Video Spectral Comparator (VSC)	As Needed**

Hyperspectral Imager (HSI)	As Needed
Personal Image Analysis System II (PIAS II)	As Needed
Contex IQ Quattro 2490 Scanner	As Needed

- \* Provided through service contract
- \*\* See Foster and Freeman VSC manual

### 3 Calibration

**3.1** A calibration logbook will be available for each piece of QDU equipment requiring calibration. Typically, the calibration logbooks will be located by the instrument(s) and will include each piece of equipment's serial number or other unique identifier as well as calibration results. A record of pertinent information, as prescribed by the *FBI Laboratory Practices for the Calibration and Maintenance of Equipment*, will be maintained in the logbook and calibration records are updated in Resource Manager in a timely manner.

**3.2** Any calibrations performed will be in accordance with the manufacturer's specifications. The following is a list of QDU equipment with calibration requirements:

<u>Equipment</u>	<u>Frequency</u>
Acculab Balance	Yearly*
Calipers	Yearly*
Ohaus Balance	Yearly*

\*Provided through current service contractor that will be adjusted as needed.

### 4 Performance Verification

**4.1** A performance verification logbook will be available for each piece of QDU equipment requiring verification of proper operation. Typically, the performance verification logbooks will be located by the instrument(s) and will include each instrument's serial number or other unique identifier as well as performance verification results.

**4.2** The following is a list of QDU equipment with planned performance verification requirements:

<u>Equipment</u>	<u>Frequency</u>
ESDA	Weekly <sup>1</sup>
VSC	Every two weeks <sup>2,3</sup>
HSI	Prior to use
PIAS II	Prior to use
Keyence Digital Microscope	Prior to use
Contex IQ Quattro 2490 Scanner	Prior to use

<sup>1</sup> Prior to use in biohazard room, portable travel kit, and Hazardous Evidence Analysis Team (HEAT) partner laboratories

<sup>2</sup> Prior to use in biohazard room and HEAT partner laboratories

<sup>3</sup> VSC 40/HD, VSC80i: if used within the FBI Laboratory, every two weeks; if used in the field or at HEAT partner laboratories, prior to use

**4.3** Any performance verifications performed by QDU personnel will be in accordance with the manufacturer's manual or equipment specific procedure. Instructions for conducting performance verifications will be maintained in the individual performance verification logbooks, or within the equipment's software and in the appropriate technical standard operating procedure (SOP) in which the equipment is used.

**4.3.1** For instructions regarding the RAW II, refer to the *QDU Procedures for Conducting Office Equipment Ribbon Examinations*.

**4.3.2** For instructions regarding conducting performance verifications on the PIAS II:

- Insert the PIAS II Companion CD into a computer that has the software installed
- Open the PIAS II software
- Open the User's Guide folder
- Open the file titled "PIAS II User's Guide v1.1 with appendices"
- Follow the listed instructions within that document

**4.4** A record of pertinent information, as prescribed by the *FBI Laboratory Practices for the Calibration and Maintenance of Equipment*, will be maintained in the performance verification logbook and the cover or first page of the notebook must be labeled with the

equipment's unique identifier as found in Resource Manager. Software updates will be logged appropriately, if required.

**4.4.1** Certain equipment has a built-in method of performance verification. If the performance verification fails on these pieces of equipment, they will not function at all. The QDU equipment that meets such requirements includes the PIAS II and the Keyence Digital Microscope.

**4.4.1.1** If such problems persist, requiring maintenance from the equipment manufacturer, a record of the corrective maintenance performed will be maintained.

## **5 Portable Equipment**

Portable equipment such as the ESDA and/or microscopes will be stored and transported in suitable protective and secure containers for field examinations. The portable equipment will be housed in the QDU and the use and maintenance of the equipment will follow the same procedures and guidelines as the in-house equipment. Equipment records will be maintained in accordance with the *FBI Laboratory Practices for the Calibration and Maintenance of Equipment*. Whenever possible, portable equipment will be maintained under the control of QDU personnel.

## **6 Reference Files**

All reference file material will be properly stored and secured in the absence of QDU personnel. In addition, reference material will not be removed from the reference area(s) without advising the program manager or designee responsible for the specific collection. Reference file material will be returned to its secured area at the end of the workday.

## **7 References**

*FBI Laboratory Operations Manual*

*QDU Standard Operating Procedures Manual*

*Equipment Manuals*

Rev. #	Issue Date	History
6	10/15/20	Added "VSC80i" to Section 4.2.
7	04/15/21	Added "Contex IQ Quatro 2490 Scanner" to section 2.2 and 4.2. Made grammar and format edits throughout. Changed "has an effect on" to "affects" in section 1. In section 1.1 removed "in order", and in section 2.2 updated "Videospectral" to "Video Spectral". In section 3.2 changed "manual" to "specifications".

Redacted - Signatures on File

**Approval**

Questioned Documents  
Unit Chief

Date: 04/14/2021

Questioned Documents  
Technical Leader

Date: 04/14/2021

Footwear/Tire Tread  
Technical Leader

Date: 04/14/2021

**QA Approval**

Quality Manager

Date: 04/14/2021